

AMENDMENT IN THE CLAIMS

Please amend claim 1 to read as follows:

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1. (Currently Amended) An apparatus, comprising:  
a converter converting an input optical signal to an original electrical signal;  
an identification unit receiving said original electrical signal, generating a first signal  
corresponding to said original electrical signal delayed by a predetermined quantity of time,  
generating a second signal corresponding to said original signal not delayed, comparing said  
first and second signals, forming a third signal in dependence upon said comparing of said first and  
second signals, detecting a bit rate in dependence upon said third signal;  
a clock generator generating a reference clock signal in dependence upon said detected bit  
rate; and  
a recovery unit recovering an input clock signal and data from said input optical signal in  
dependence upon said reference clock signal, and wherein said identification unit further comprises:  
a first unit delaying said electrical signal, performing said exclusive -OR operation upon said  
first and second signals, and forming said third signal; and  
a second unit filtering said third signal, and detecting said bit rate in dependence upon a  
voltage level of said filtered third signal.

2. (Original) The apparatus of claim 1, said apparatus corresponding to an optical receiver  
receiving optical signals having a plurality of different bit rates.

1 3. (Original) The apparatus of claim 1, said bit rate of said input optical signal corresponding  
2 to a transmission rate.

1 4. (Original) The apparatus of claim 1, further comprising an amplifier amplifying said  
2 original electrical signal received from said converter.

1 5. (Original) The apparatus of claim 4, said amplifier outputting said amplified electrical  
2 signal to said identification unit.

1 6. (Original) The apparatus of claim 1, said converter corresponding to an optoelectric  
2 converter.

1 7. (Original) The apparatus of claim 1, said identification unit corresponding to a bit rate  
2 identification unit.

1 8. (Original) The apparatus of claim 1, said comparing performed by said identification unit  
2 corresponding to said identification unit performing an exclusive-OR logic operation upon said first  
3 and second signals.

1 9. (Original) The apparatus of claim 8, said forming of said third signal performed by said  
2 identification unit corresponding to said identification unit forming said third signal in dependence

upon said exclusive-OR logic operation performed upon said first and second signals.

10.(Original) The apparatus of claim 9, said identification unit comprising:

a first unit delaying said original electrical signal, performing said exclusive-OR operation upon said first and second signals, and forming said third signal; and

a second unit filtering said third signal, detecting said bit rate in dependence upon a voltage level of said filtered third signal.

11.(Original) The apparatus of claim 10, said filtering corresponding to low-pass filtering.

12.(Original) The apparatus of claim 10, said first unit corresponding to a bit rate identification signal generator.

13.(Original) The apparatus of claim 10, said second unit corresponding to a bit rate deriving unit.

14.(Original) The apparatus of claim 10, said second unit comprising:

a filter filtering said third signal;

an analog-to-digital converter receiving said filtered third signal, converting said filtered third signal from an analog signal to a digital signal; and

a determiner determining said bit rate in dependence upon said digital signal received from

6 said analog-to-digital converter.

15.(Original) The apparatus of claim 10, said first unit comprising:

1 a buffer unit receiving said original electrical signal, outputting two duplicate signals  
2 substantially equivalent to said original electrical signal, said two duplicate signals corresponding  
3 to a primary signal and a secondary signal;  
4

5 a delay unit receiving said primary signal, delaying said primary signal by said predetermined  
6 quantity of time, outputting said primary signal, said delayed primary signal corresponding to said  
7 first signal; and

8 an operator unit performing said exclusive-OR logic operation upon said first and second  
9 signals.

1 16.(Original) The apparatus of claim 1, said clock generator comprising a plurality of  
2 oscillators generating clocking signals of different frequencies and selectively operating said  
3 oscillators to generate said reference clock signal in dependence upon said bit rate detected by said  
4 identification unit.

1 17.(Original) A method of operating a receiver which functions independently of a bit rate  
2 of a received signal, comprising:

3 receiving an original signal;

4 generating a resultant signal by comparing a first signal and a second signal, said first signal

5 corresponding to said original signal delayed by a predetermined quantity of time, said second signal

6 corresponding to said original signal not delayed;

7 determining a bit rate of said original signal in dependence upon said resultant signal;

8 generating a reference clock signal in dependence upon said determined bit rate; and

9 recovering an input clock signal and data from said original signal in dependence upon said

10 ~~reference clock signal.~~

1 18.(Original) The method of claim 17, said comparing of said first and second signals  
2 corresponding to performing an exclusive-OR logic operation upon said first and second signals, said  
3 resultant signal being generated as a result of said exclusive-OR logic operation.

1 19.(Original) The method of claim 18, further comprising:  
2 said original signal corresponding to an input optical signal;  
3 converting said input optical signal to an electrical signal;  
4 outputting two duplicate signals substantially equivalent to said electrical signal, said two  
5 duplicate signals corresponding to a primary signal and a secondary signal; and  
6 delaying said primary signal by said predetermined quantity of time, outputting said primary  
7 signal, said delayed primary signal corresponding to said first signal.

1 20.(Original) The method of claim 17, said first, second, and third signals corresponding  
2 to electrical signals.

1 21.(Original) The method of claim 17, said method corresponding to receiving signals  
2 having a plurality of different bit rates.

1 22.(Original) The method of claim 17, said original signal received corresponding to a  
2 plurality of original signals received, said recovering of said input clock signal and data from said  
3 original signal being performed for said plurality of original signals received, said plurality of  
4 original signals received having a respective plurality of different bit rates.

1 23.(Original) The method of claim 17, said recovering of said input clock signal and data  
2 from said original signal being performed for a plurality of original signals received, said plurality  
3 of original signals received having a respective plurality of different bit rates.

1 24.(Original) The method of claim 17, said method corresponding to receiving optical  
2 signals having a plurality of different bit rates.

1 25.(Original) The method of claim 17, further comprising:  
2 receiving an input optical signal;  
3 converting said input optical signal to an original electrical signal;  
4 outputting two duplicate signals substantially equivalent to said original electrical signal, said  
5 two duplicate signals corresponding to a primary signal and a secondary signal; and

6        delaying said primary signal by said predetermined quantity of time, outputting said primary  
7        signal, said delayed primary signal corresponding to said first signal.

26.(Original) The method of claim 17, further comprising:

3        said receiving of said original signal being performed by an optoelectric converter, said  
4        original signal being an optic signal, said optoelectric converter converting said original optic signal  
5        to an electrical signal;

6        outputting two duplicate signals substantially equivalent to said electrical signal, said two  
7        duplicate signals corresponding to a primary signal and a secondary signal, said outputting of said  
8        two duplicate signals being performed by a buffer; and

9        delaying said primary signal by said predetermined quantity of time, outputting said primary  
10       signal, said delayed primary signal corresponding to said first signal.

1       27.(Original) The method of claim 17, said generating of said reference clock signal being  
2       performed by a clock generator, said clock generator comprising a plurality of oscillators generating  
3       clocking signals of different frequencies and selectively operating said oscillators to generate said  
4       reference clock signal in dependence upon said detected bit rate.

1       28.(Original) An apparatus, comprising:

2       a converter converting an input optical signal to an original electrical signal;

3       an identification unit receiving said original electrical signal, generating a first signal

4 corresponding to said original electrical signal delayed by a predetermined quantity of time, generating  
5 a second signal corresponding to said original electrical signal not delayed, forming a third signal  
6 by performing an exclusive-OR logic operation upon said first and second signals, detecting a bit rate  
7 in dependence upon said third signal;

8 a clock generator generating a reference clock signal in dependence upon said detected bit  
9 rate; and

10 a recovery unit recovering an input clock signal and data from said input optical signal in  
11 dependence upon said reference clock signal.

1 29.(Original) The apparatus of claim 28, said clock generator comprising a plurality of  
2 oscillators generating clocking signals of different frequencies and selectively operating said  
3 oscillators to generate said reference clock signal in dependence upon said bit rate detected by said  
4 identification unit.

1 30.(Original) The apparatus of claim 28, said input optical signal corresponding to a  
2 plurality of input optical signals, said recovering of said input clock signal and data from said input  
3 optical signal being performed for each of said plurality of input optical signals, said plurality of  
4 input optical signals received having a plurality of different bit rates.

1 31.(Original) The apparatus of claim 30, said converter corresponding to an optoelectric  
2 converter.



1 32.(Original) The apparatus of claim 31, said identification unit corresponding to a bit rate  
2 identification unit.

1 33.(Original) The apparatus of claim 32, said identification unit comprising:  
2 a first unit delaying said original electrical signal, performing said exclusive-OR operation  
3 upon said first and second signals, and forming said third signal; and  
4 a second unit filtering said third signal, detecting said bit rate in dependence upon a voltage  
5 level of said filtered third signal.

1 34.(Original) The apparatus of claim 33, said second unit comprising:  
2 a filter filtering said third signal;  
3 an analog-to-digital converter receiving said filtered third signal, converting said filtered third  
4 signal from an analog signal to a digital signal; and  
5 a determiner determining said bit rate in dependence upon said digital signal received from  
6 said analog-to-digital converter.

1 35.(Original) The apparatus of claim 33, said first unit comprising:  
2 a buffer unit receiving said original electrical signal, outputting two duplicate signals  
3 substantially equivalent to said original electrical signal, said two duplicate signals corresponding  
4 to a primary signal and a secondary signal;

5 a delay unit receiving said primary signal, delaying said primary signal by said predetermined  
6 quantity of time, outputting said primary signal, said delayed primary signal corresponding to said  
7 first signal; and

8 an operator unit performing said exclusive-OR logic operation upon said first and second  
9 signals.

1 36.(Original) The apparatus of claim 33, said clock generator comprising a plurality of  
2 oscillators generating clocking signals of different frequencies and selectively operating said  
3 oscillators to generate said reference clock signal in dependence upon said bit rate detected by said  
4 identification unit.

1 37.(Original) The apparatus of claim 33, said filtering corresponding to low-pass filtering.

1 38.(Original) The apparatus of claim 37, said second unit comprising:

2 a filter filtering said third signal;

3 an analog-to-digital converter receiving said filtered third signal, converting said filtered third  
4 signal from an analog signal to a digital signal; and

5 a determiner determining said bit rate in dependence upon said digital signal received from  
6 said analog-to-digital converter.

1 39.(Original) The apparatus of claim 38, said first unit comprising:

2 a buffer unit receiving said original electrical signal, outputting two duplicate signals  
3 substantially equivalent to said original electrical signal, said two duplicate signals corresponding  
4 to a primary signal and a secondary signal;

5 a delay unit receiving said primary signal, delaying said primary signal by said predetermined  
6 quantity of time, outputting said primary signal, said delayed primary signal corresponding to said  
7 first signal; and

8 an operator unit performing said exclusive-OR logic operation upon said first and second  
9 signals.

1 40.(Original) The apparatus of claim 39, said clock generator comprising a plurality of  
2 oscillators generating clocking signals of different frequencies and selectively operating said  
3 oscillators to generate said reference clock signal in dependence upon said bit rate detected by said  
4 identification unit.